Re-engineering the Revenue Cycle for the Emerging Medical Consumer White Paper

A Work Product of the HIMSS Financial Systems Revenue Cycle Task Force

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Introduction

The focus of this research effort is to identify the current state of the revenue cycle process best practices, summarize the industry forces most likely to affect future revenue management, and identify both current and future technology trends. The intended audience is as broad as the impact of change on the revenue cycle will be to provider organizations. Therefore, this effort is of interest to anyone in the healthcare industry responsible for delivering patient care services.

Revenue cycle processes and workflows are receiving unprecedented attention as the healthcare industry faces new demands on financial management as well as changes in response to new approaches in patient satisfaction (customer/patient relationship management and retention), consumerism (pricing transparency) and quality. Today's emphasis is on managing the revenue cycle along the patient care service continuum, from the initial physician office visit through post-acute care. Healthcare consumers demand increased levels of convenience, service, quality, and efficiency. Likewise, healthcare providers are devising new and innovative healthcare delivery models in order to stay competitive. As patients increasingly view healthcare from a retail perspective, they will demand higher levels of customization and personalization, which will translate into a new degree of complexity in contract management, billing, and collections.

Also, the recent re-ignition of healthcare cost inflation has spurred interest among employers in consumer-driven product designs, resulting in innovative insurance products that share costs in a multitude of different ways, including:

- Increasing co-payments for physician services;
- A shift from dollar co-payments to percentage coinsurance;
- The imposition of cost sharing for inpatient and ambulatory surgery;
- A conversion from HMO product designs that generally do not permit annual deductibles to preferred provider organization (PPO) product designs that do; and
- Consumer-driven health plans (CDHP) that feature high-deductible catastrophic coverage and health savings accounts (HSAs) for routine services[1].

At the same time that insurance products are evolving, new emphasis is placed on quality. A variety of programs has been implemented within the last eight years focused on changing how society views the delivery of healthcare services. Many of these can have a direct impact on revenue cycle management. Public data reporting at the national level has been instituted, using quality measures linked to pay-for-performance (P4P) demonstration projects. There are new regional administrative contractors for Medicare: the Medicare Administrative Contractors (MACs), Medicare Recovery Audit Contractors (RACs), and Program Integrity Contractors (PICs); all have contractual obligations to identify opportunities to improve the legitimacy and accuracy of Medicare claims.

These activities demonstrate the significant financial opportunities that may result when clinical and revenue cycle systems are linked together for optimum effectiveness and efficiencies across the care continuum. The industry today is in a state of transition in meeting the challenges and demands placed on providers around information flow and

financial management. This transition is required in order for the industry to successfully develop the next generation of solutions.

This paper provides an overview of the current status and the future of revenue cycle management segmented into three major sections: current status and trends, industry forces affecting revenue cycle management, and future trends. *Current Status and Trends* identifies the challenges faced in revenue cycle management from pre-service through discharge. *Industry Forces Affecting Revenue Cycle Management* addresses the external forces within healthcare that have an impact on revenue, how the revenue cycle is managed, and how the revenue cycle potentially will change in the near future. *Future Trends* addresses technology changes around revenue cycle management with a focus on three major trends: patient satisfaction, consumerism, and quality.

Current Status and Trends

Revenue cycle management is no longer just a back-end process, beginning when provider services during individual patient encounters are completed. It should begin proactively at the time a provider and patient decide to move forward with a plan of care. This section addresses the current status of the industry, its opportunities, and challenges, including the gaps that exist in information technology and process management.

Pre-Service Challenges

Pre-service challenges exist at all segments of the patient care continuum. The first step for a consumer of health services is to interact with the healthcare provider by scheduling a visit to a system provider. In order to protect the integrity of the revenue, it is essential to capture all necessary medical signs, symptoms, diagnosis information, and financial data, including pre-certification requirements at the time of scheduling.

> **Initial contact.** For the purposes of this white paper, the initial patient contact is described as occurring in a provider's office, a hospital, a hospital's outpatient facility or a hospital's Emergency Department. For a provider office visit or scheduled outpatient hospital visit, current best practice is to pre-register a patient, verifying all insurance coverage prior to first contact, with validation of insurance at all subsequent contacts. In an emergency situation, the practice is to capture insurance information at the time of registration, either through discussion with the patient or with a HIPAA (Health Information Portability and Accountability Act) authorized family member. Information technology (IT) software systems, which automatically conduct insurance verification, are also an essential component for validating third party coverage for emergency patients. Lack of information software systems integration prevents providers from utilizing insurance information that may exist in other IT systems that the provider may use. Emerging IT systems for registration quality assurance purposes provide registrars with the ability to identify clerical or data entry errors in real time and correct them.

Referrals for scheduled services. For scheduled patient services, the best practice is for the referring physician to contact the provider on behalf of the patient, either by phone or online. This practice helps to ensure the correct services are ordered and medical necessity requirements are met. Current industry benchmarks indicate pre-registration for scheduled services should exceed 95% of all scheduled patients.[2] Physician portals are needed to facilitate the transfer of patient demographic information to the provider for the scheduled outpatient service. In addition, appointment confirmation prior to the visit reduces "no show" rates. On the service date, the admission process at the clinical facility then becomes an opportunity to leverage information already obtained, collect patient deposits, and confirm the service orders.

Verification - real time and batch validation. Validation of third-party coverage, using eligibility systems, is an essential step to ensure accurate pre-registration and registration information. Exception work-listing for eligibility responses with errors facilitates a streamlined workflow process, maximizing productivity and allowing corrections to be made prior to service, or, at the very latest, prior to claim generation (claim drop). In addition, all patients registered as self-pay should be automatically checked for Medicaid eligibility. Also, IT systems are needed to track tests requiring pre-certification by CPT code and insurance plan. Currently, there is a gap in the industry's ability to provide this.

Service estimates. IT systems, which estimate out-of-pocket expenses for the patient, are needed to facilitate pre-service financial clearance conversations and provide tools for pricing transparency. Creating a financial plan with patients prior to the healthcare service facilitates point of service collections and sets payment expectations. This is increasingly important, as the self-pay portion of healthcare increases. New IT systems will require interaction and coordination of information from the provider, insurer, and patient to establish best estimates. Third-party payment structures, prior claims data for the requested service, payor eligibility responses, patient co-payments, and coinsurance percentages will be needed to most accurately estimate patient responsibility. When patient responsibility is estimated accurately, patient satisfaction with the financial process will improve.

Self pay accounts receivable management. Healthcare Financial Management Association's (HFMA's) Statement 15 provides guidance on best practices for managing self-pay accounts receivable. According to HFMA Statement 15, self-pay accounts receivable should be appropriately categorized as collectible, charity care or bad debt no later than the time of service.[3] In section 4.1, "The P&P [Principles & Practices] Board recommends that providers make every practical effort to make charity care eligibility determinations before or at the time of service."[3] In Section 8, HFMA Statement 15 goes on to say**:** "If a self-pay patient does not meet collectibility criteria, those amounts should not be recognized as revenue at the time of service. In these instances, revenue should be recognized only when collections are reasonably assured and for an amount that is

determinable."[3] Use of medical credit scoring and online financial applications provided by emerging technology can facilitate implementing this recommendation from HFMA's P&P Board, not just for self-pay patients, but for all patients, as the methodologies for cost sharing change and leave patients with larger and larger portions of the bills.

Time of Service Challenges

Clinical documentation of services can be best achieved with clinical information systems, including electronic order entry and clinical documentation of the patient care delivered (electronic medical record systems). Best practice calls for charges to be generated automatically through order entry and medical record documentation. This applies across all types of service settings, including physician offices, ambulatory care centers, hospitals, home health and long term care. Adoption and implementation of these types of systems has been slow. Since KLAS first began measuring computerized practitioner order entry (CPOE) adoption in 2003, the number of US hospitals with over 200 beds using any type of CPOE system has increased from 3.5 percent to 17 percent.[4] The number of physicians using CPOE increased from 45,000 in 2003 to 171,000 physicians in North America using CPOE in acute care settings.[4]

Further, industry practice calls for charge reconciliation and retrospective audits to ensure quality processes are in place. Enterprise integration is the ultimate goal—sharing data across all systems both within an organization and across organizations to maximize productivity and quality.

Discharge and Post-Service Challenges

Discharge and post-services challenges are often specific to the care setting and the type of services received. In addition, the type and amount of revenue at risk vary widely. This section focuses on best practices found in the ambulatory and hospital settings. The complexities of the various post-acute care settings make it difficult to summarize all of the types of best practices currently in use for home health, long-term care, and hospice.

Today, accurate billing information is not immediately available upon discharge. In fact, most insured patients do not have the benefit of a financial counseling conversation to discuss financial planning as part of the discharge process. Typically, a provider's financial counseling resources are exhausted addressing the needs of the uninsured.

For the uninsured, financial counselors discuss with patients and family their financial resources. Discussions primarily consist of questions necessary to complete Medicaid and facility financial assistance applications. Patients are held responsible for providing income documentation to support the application, and in many cases, they may be non-responsive to multiple requests for that documentation. In addition, the current financial application process is manual and labor intensive. Technology advancements for automating this process are needed. Best practice calls for the use of technology to capture medical credit scoring, which can be used to support information provided on financial applications.

Hospital Emergency Departments present unique revenue management challenges. Best practice for emergency department patients should include verifying the patient's identity and estimating out-of- pocket amounts at discharge. Financial counselors should staff the discharge areas to collect payment, complete financial applications, and/or discuss payment options for the remaining balance.

Following the patient's discharge, the ambulatory and inpatient coding is provided by the provider's Health Information Management Department, typically no later than two days post discharge. In addition, quality auditing is necessary. IT system edits for "scrubbing" allow the ability to edit upon claim entry and during claim submission to the payor. Best practice suggests that pre-service "dummy claims" should be created and disseminated in order to educate payors, providers, and patients on the services to be provided and the associated financial responsibilities.

Electronic claims status and online bill pay review improves the revenue cycle's ability to manage third-party accounts receivable. Electronic remittance processing accelerates the timing of cash posting, in addition to reducing human error. Valuable human resources can be applied to other functions in the revenue cycle, such as denial monitoring.

> **Denial monitoring.** Providers should monitor payors for compliance to payment terms per the contract. Denial processing, management, and analysis are essential for thorough Accounts Receivables management. Information regarding the denial is collected, and resubmission of the claim should be timely. Appeals tracking and claims management feedback provides the opportunity to improve front-end revenue cycle processes. Identification of payment variances and the appeals process should be in place, tracked and trended over time and used in future contract negotiations.
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> For the self-pay accounts receivable, collection policies and practices should be monitored for compliance with HFMA's recommended patient-friendly billing practices. Policies should be clear when bad debt is determined to be a write off. Options also should be considered for moving self-pay accounts receivable to early-out vendors, third-party collection agencies as well as selling the accounts receivable.

In conclusion, healthcare provider organizations will need a multi-faceted strategy to improve adherence to process standards, reduce billing errors, accelerate cash flow, and reduce the cost to collect. These tactics will improve the quality of the revenue cycle and support the goal for patient satisfaction with the healthcare experience.

Hammer & Franklin (2008) suggest that in order to address the gaps that exist in systems today, next generation revenue cycle information systems will need the following key characteristics:

- Integration with niche bolt-on IT systems
- Workflow rules engines

- Adaptability and flexibility to integrate with systems both within an organization and with strategic partners
- Integration with electronic medical records
- Analytics for decision support
- Advanced scorecards to populate knowledge management systems
- Consumer-focused features for connectivity with patients
- Single data base structures in standard formats to facilitate interoperability
- Lower cost of ownership[5]

Industry Forces Affecting Revenue Cycle Management

A study published in *Trends in Healthcare Financial Systems,* Vendome Group, 2007, noted that one-in-four acute market organizations plans to purchase a new revenue cycle system or upgrade its system.[6] These organizations are looking for integrated platforms with richer functionality and more flexibility to accommodate legislative changes. Key attributes of next-generation enterprise patient financial systems include service-oriented architecture, rule and workflow engine functionality, claims scrubbing, flexible real-time reporting, consumer self-service Web interaction capabilities, and direct Web transaction links with payors.

With reimbursements shrinking and costs rising, it is increasingly important that today's healthcare leadership stay on top of industry practices and trends. However, the rapid pace of changes to legislation, evolving technologies, payors' changing rules, and tighter budgets present a growing number of challenges. The array of industry issues facing revenue cycle leadership include:

- HIPAA claims attachment rules
- National Provider Identifier (NPI)
- Medicare severity-adjusted Diagnostic Related Groups (MS-DRGs)
- International Classification of Diseases – the ICD-10 coding system
- Medicare recovery audit contractors (RACs)
- Pay-for-performance
- Price and quality transparency
- Consumer-directed health plans
- Substantial increase in the self-pay fraction of the payor mix
- 5010 implementation with ICD-10

HIPAA Claims Attachment Rules

Most of the healthcare community understands that October 16, 2003, marked the deadline for complying with the HIPAA Transactions and Code Sets (TCS) Rule.[7] It is important to recognize that transitioning to the transaction standards named in this Rule was only the beginning of mandated healthcare transaction "administrative simplification" in the United States. The Department of Health and Human Services (HHS) issued the Notice of Proposed Rule Making (NPRM) for the Claims Attachment transaction in 2005.[7]

There are many benefits of implementing the claims attachment standard, such as:

- Processing claims attachment data in a more timely manner;
- Streamlining payor's workflow as industry moves toward codified data; and
- Eliminating excessive copying of medical records and postage.

On the other hand, there are implementation issues. Payors need to change their systems to store and view claims attachment data, while providers require new integration between their internal financial and clinical systems.

NPI, MS-DRGs, and ICD-10

National Provider Identifier (NPI) readiness was not as easy to achieve as many thought it would be. Software vendors, payors, and clearinghouses had to change their health information systems (HIS) and billing/claims software systems; providers had to communicate and coordinate with facilities, physicians, and payors; and crosswalks were developed between legacy provider numbers and National Provider Identifiers (NPIs). This required an enormous amount of testing across multiple stakeholders. For those who continued to use legacy provider numbers, they now must work to eliminate the use of these legacy numbers, which requires more system changes and testing.

Payors, software vendors, and clearinghouses prepared for NPI and became compliant in waves. This required continuous communication between these stakeholders and providers to ensure a smooth transition.

Before most organizations completed NPI readiness activities, they had to tackle the replacement of 538 DRGs with 745 severity-adjusted DRGs. In addition, the requirement of collecting and reporting conditions present on admission (POA) was mandated. The challenge was to identify financial and coding impacts, safeguard workflow, and protect operational efficiency. This set of changes affected coding, HIS, and reporting systems and required significant training for coding staff.

The next major regulatory challenge facing providers is the ICD-10 coding system, which will impact virtually every system, from admissions to discharge, that contains diagnosis and procedure codes. Although the implementation date for ICD-10-CM and ICD-10-PCS (jointly referred to as "ICD-10") may still be several years away, it is not too early to begin planning for the transition—and even putting some of those plans in motion. A well-planned, well-managed implementation process will increase the chances of a smooth, successful transition. Experiences in other countries have shown early preparation is the key to success. It should also be noted that ICD-11 is already under development by the World Health Organization (WHO).

Medicare Recovery Audit Contractors (RACs) and Other Government Program Changes

The purpose of Medicare RACs under the Medicare Integrity Program is to 1) identify underpayments and overpayments, and 2) recoup overpayments under the Medicare program. CMS estimates that billions of dollars have been inappropriately paid out by Medicare. A pilot program currently in progress will determine if RACs will be a cost-

effective means of adding resources to ensure providers receive correct payments. Providers undergoing these audits are dealing with the cost and time to pull medical records as well as determining how and when to appeal demand letters.

Additional changes to the Medicare claims program resulting from the Medicare Modernization Act of 2003 include consolidation of the Fiscal Intermediaries (FIs), Carriers into Medicare Administrative Contractors (MACs), regional Durable Medical Equipment suppliers, and new regional Medicare Program Integrity contractors. More emphasis is being placed on standardization across regions, with an increased overall emphasis on program integrity.

Pay-for-Performance (P4P)

Pay-for-performance programs are increasingly being instituted by commercial health plans, employers, government agencies (CMS and state Medicaid programs), and others to reward providers having met identified performance goals or having shown a demonstrable improvement in the selected performance criteria. According to a recent survey by Med-Vantage® and The Leapfrog Group, there are more than 148 P4P sponsors (mostly commercial health plans) that offered 258 P4P programs at the end of 2007.[8] This number has increased rapidly from 2003 when there were only 39 P4P programs.[8]

While a majority of P4P programs target small physician practices or larger medical groups, there are 47 P4P programs that were directed at larger provider facilities such as hospitals.[8] The most notable example of a P4P program directed at hospitals is the CMS/Premier Hospital Quality Incentive Demonstration (HQID) program, which involves more than 250 U.S. hospitals.[9] A number of commercial health plans also have enacted large-scale P4P programs directed at hospitals, including Blue Cross Blue Shield of Michigan that has a P4P program involving nearly every short-term acute care hospital in the state of Michigan.[10]

Besides the obvious bottom-line financial impact that participation in a P4P program may have for a participating provider facility, providers must be concerned about several aspects of P4P programs including:

- Performance criteria, which may include efficiency/cost of care measures;
- Type of financial incentive payments made to hospitals (e.g., bonus, enhanced DRG payment applied prospectively, etc.); and
- Data gathering and collection requirements.

Also, providers must be concerned about the impact this program will have on workflow and process issues.

Price and Quality Transparency

During the last several years, interest in collecting and publicly reporting information on healthcare cost and quality has been growing. Price and quality transparency is being advocated by various commercial health plans, governments (state and federal), and others as a way to help control overall healthcare costs, improve patient quality, and support consumers in making more informed health decisions. Also, transparency

reporting could help providers improve by benchmarking their performance against others and encouraging health plans and public programs to reward quality and efficiency.

Important questions remain about the accuracy of the price and quality information being posted and the comparability of the results across different populations. Additional questions remain about whether and how patients and others use this information in making health decisions. Early evidence, including a systematic review of quality report cards that appeared in the January 15, 2008 issue of the *Archives of Internal Medicine*, has found the results can be confusing to the public and the quality measures represent only a small fraction of what is occurring at a hospital or a physician's office.[11] Early attempts at pricing transparency have also been criticized for either being too general (e.g., giving the average charge price for all the providers in a particular area) or being too detailed (e.g., giving the specific price of every service procedure).[12]

Transparency is here to stay and likely to only increase in the future. From a pricing transparency standpoint, providers must be prepared in the near future to offer information to consumers that is both understandable and actionable. Consumers will need the ability to compare costs by treatment and condition across various providers and ensure that this data can also be linked to meaningful quality information.

Consumer-directed Health Plans

Consumer-directed health plans can be broadly labeled to include any health plan designed to expose a consumer to the true cost of healthcare and encourage a consumer to take a more active role in his or her healthcare. In general, the most prevalent form of consumer-directed health plans today is high-deductible health plans linked to a health reimbursement account (HRA) or a health savings account (HSA). Estimates of the actual number of individuals covered by a high-deductible health plan (HDHP) linked to an HRA or HSA vary.

According to the 2007 Kaiser/Health Research & Educational Trust Survey of Employer Health Benefits, five percent of all employees with health insurance were in HDHPs; this represented 3.8 million people.[13] This number is up from 4 percent of all employees in 2006.[14] The 2007 Employee Benefits Research Institute/Commonwealth Fund Consumerism in Health Care Survey found that 11 percent of individuals covered by private insurance were in HDHPs, but that only two percent were in consumer-directed health plans.[15] Other industry estimates have higher enrollment figures for consumer-directed health plans.[14] Regardless, it is safe to assume that most local markets reflect 5 to 10 percent of individuals with private health insurance are covered by a HDHP. There is considerable variation depending upon several factors, including geography, local employer demographics, and insurance carriers in the local market.

Unlike most Health Maintenance Organizations (HMOs) or Point of Service (POS) plans, which typically have no or small annual deductibles for in-network services, providers have to be concerned with the fact that many individuals with consumer-directed health plans have an annual deductible that starts at $1,000 and, in many cases, is much higher.

In fact, 39 percent of the individuals in high deductible health plans had an annual deductible of at least $2,000 or more, according to the 2007 Kaiser/Health Research & Educational Trust Survey of Employer Health Benefits.[13] This compares to just one percent of individuals in traditional PPO plans.[13]

Compounding this issue for providers is the fact that there are no standardized approaches in the marketplace to ensure providers receive payment for rendered services falling under the annual deductible of individuals with consumer-directed health plans. Providers must be very proactive to ensure they are getting as much information as possible upfront (e.g., the amount of the deductible accumulated to date) and they collect as much of the payment possible before the patient/consumer leaves.

Substantial Increase in the Self-pay Fraction of the Payor Mix

Whether one uses the term "uninsured patient" or "self-pay patient," the number of Americans without health insurance is increasing. According to the most recent census estimates, there were 47 million people in the United States (16 percent of the population) who were without health insurance for at least part of 2006.[16] Both the number of people and the percentage of the United States population without health insurance for some portion of the year have steadily been rising since 2001. According to a Commonwealth Study published in *Health Affairs* in June 2008, there are 25 million underinsured Americans—meaning, they have health coverage but still have medical expenses they cannot afford. This equates to 42% of Americans under the age or 65 who are uninsured or underinsured.[17] Granted, the number of uninsured includes a significant portion of people who either choose not to purchase health insurance coverage or who remain without health insurance coverage for only a few months; however, there is still a sizeable number of patients who are among the chronically uninsured, and estimates indicate this population is growing.

Regardless, most of the uninsured will end up at a hospital at some point, and the majority cannot afford to pay their entire medical bills. Resources are available to help fund medical care for self-pay patients, including self-pay discounts, charity care, Medicaid, the State Children's Health Insurance Program and other public assistance programs. The issue for providers is identifying patients who qualify for these resources and accessing them in a timely, cost-efficient way; financial assistance guidance should be provided up-front, before the first bill goes out to the patient.

Providers are finding new ways to tackle these issues by leveraging the power of new technologies, including revamping their workflow processes, integrating their IT systems; and leveraging connectivity with their strategic partners.

Future Developments

Revenue cycle processes and workflows are receiving an unprecedented amount of technological attention, as the healthcare IT industry promotes new systems in response to new approaches in patient satisfaction (customer/patient relationship management and retention), consumerism (pricing transparency) and quality.

Trend 1: Patient Satisfaction

Background. Healthcare consumers are demanding increasing levels of convenience, service, quality, and efficiency. Likewise, healthcare providers are devising new and innovative healthcare delivery models in order to stay competitive. These demands are driving the evolution of new healthcare delivery models, which will also drive new approaches to information flow and financial management. Some of the new models include telemedicine, medical home care, concierge care, email consults, and virtual visits.

As patients increasingly view healthcare from a retail perspective, they will demand higher levels of customization and personalization, translating into a new degree of complexity in contract management, billing, and collections. One area that will become increasingly important is real time processing of healthcare payments. Just like payment for groceries or gas, the patient will want to know his or her share of costs "at the counter." This will apply more pressure on systems to support real-time adjudication for many routine treatments.

In addition, with increasing healthcare focus on wellness, prevention, and chronic disease management, there will be a greater need to integrate other traditional and non-traditional entities into the patient management process. For example, payor case managers will require timely access to inpatient records and discharge plans to ensure plan members' care is coordinated and appropriate once they leave the hospital.

Technology Implications, Barriers and Recommendations. There will be increasing complexity in contract loading, maintenance, and payment reconciliation while transitioning to internal and external system integration. During this transition period, which could prove to be extensive, customer service representatives will need to access and coordinate a wide variety of information when responding to customer inquiries; this information includes complex payment schemas. In addition, communication will become even more critical, with requirements to notify payors and other care providers across the continuum of specific events. Organizations will need to manage potential broad access to patient records by care providers and patients outside the facility.

Trend 2: Consumerism

Background: Healthcare Providers. Cost-shifting from employers and favorable tax legislation is creating an incentive for individual consumers to take more responsibility for directing and financing their healthcare needs.

Roughly seven percent of employers now offer consumer-directed health plans, including health savings accounts and health reimbursement accounts—up from six percent last year, according to survey data from the American Association of Preferred Provider Organizations.[8] But the number of employers providing consumer-directed plans is expected to continue growing, since 11 percent of the companies not offering such plans said they are likely to begin doing so this year.[8] Large corporations are clearly leading the overall consumer-directed charge; among companies with more than 20,000 employees, 41 percent now offer either an HSA or an HRA, compared with 37 percent

last year.[8] More than 40 percent of large companies now offer consumer-driven health plans.[9]

High deductible health plans allow consumers to save money in a tax-favorable account, but also require the consumer to take on more responsibility for directing their healthcare dollars. This is driving two significant changes that impact, directly or indirectly, the hospital revenue cycle:

- Increasing portions of reimbursement will come from individuals versus third-party payors and, as a result, providers must develop new approaches to selling, financing, billing, and collecting for their services.
- Industry sources suggest that self-pay and balance before/after insurance accounts cost significantly more to collect than other accounts and require additional time to do so. Consequently, next-generation systems have incorporated address and medical credit-checking functionality into their offerings. When used as a part of every patient registration encounter, these functions can help:
    - Reduce returned mail
    - Assess credit risks
    - Identify open credit lines available to pay self-pay balances
    - Segment self-pay receivables into categories, thus reducing collection costs; these categories are:
        - High propensity to pay when billed (only mail contact required)
        - Propensity to pay only after phone contact (assign to predictive dialer)
        - Low propensity to pay (rapidly charge off to collection agency)[9]

With industry studies showing the chances of collecting payment falling by as much as 60 percent if the system bills the patient after the visit,[10] hospitals need to be able to determine patient liability at or before the service is provided and assess the patient's ability/likelihood to pay as early as possible. This will require tools, technologies, and associated workflow adjustments for new or expanded revenue cycle capabilities:

- Validate patient identity
    - Full name, Social Security Number, Drivers License/state identification number, citizenship
    - Understanding that medical identity theft now hits 250,000 people each year, according to the Federal Trade Commission;
- Verify and correct patient/policyholder demographics—address, date of birth (DOB), etc.
- Determine estimated patient responsibility and ability to pay prior to the visit
- Provide financial guidance and appropriate payment options, financial assistance or charity care
- Manage payment at or before the time the patient arrives for service

This will present difficult challenges for some patients:

- Patients are not accustomed to payment (other than token co-payment) being required at the time of service; this may increase the risk of driving patients to less progressive competitors.

- Patients will be required to present evidence of coverage prior to receiving services.
- Patients may not understand their coverage or responsibilities under their policy, including payment amounts, availability of their healthcare funds and hospital collection processes.

Technology Implications, Barriers and Recommendations. Incorrect eligibility continues to be one of the primary reasons for healthcare claim delays and denials. Eligibility verification should be routinely performed at multiple points before, during, and after service. Typical eligibility verification is targeted; however, new tools being developed can scan multiple payors using multiple patient identifiers, thereby significantly increasing the hit rate.

Support for ANSI ASC X12 270/271 eligibility transaction varies among players. ANSI ASC X12 is the official designation of the U.S. national standards body for the development and maintenance of Electronic Data Interchange (EDI) standards. However, data may still be inconsistent and often not sufficient to determine patient financial accountability. Efforts such as CAQH's CORE® (Committee on Operating Rules for Information Exchange) and the Healthcare Information Technology Standards Panel (HITSP) are working to standardize and make the data more robust. Provider organizations should demand compliance with these standards from their software vendors, transaction clearinghouses, and payors.

Even with these standards and work efforts, there may still be a problem accessing the current deductible for out-of-network providers, a key building block for getting to real time payment processing at point-of-service. This is strictly a business issue, not a technical issue. A recommended best practice is to authorize a third-party clearinghouse to manage the deductible and thus, become the source of truth where multiple plan administrators have a need to coordinate care and determine a patient's financial responsibility, such as behavioral, dental and vision networks.[15]

In addition, payors are beginning to adopt "smart-cards" with member identification information encoded on the card either in a magnetic stripe or bar code. While these cards may help to increase data entry accuracy and efficiency, they contain all the security risks associated with the ease of reading a magnetic stripe or bar code.[18] Actual smart cards have tiny gold-plated 6-8 contacts and are defined in ISO 7816-2.[18] These cards require a power source to "read" the card and offer additional security.[18] Smart cards without contact requirements are available but carry all the security risks of magnetic strips or bar codes.[18] However, much like bank cards in the financial industry, the benefits may outweigh the risks. Ultimately, these cards could provide "single-swipe" access to payment instruments.

Developing a system for real-time processing of payments for routine treatments is more of a reality today, as banks and health data management firms cooperate to support new real-time approaches. One example is the ability, through a debit card, to pay for a medical treatment at point-of-service and have it recognized by the patient's employer as

a payroll deduction. HSAs offer tax-free dollars for the high deductible portion of a health plan that, in many cases, is being funded by the employer. This type of program taps tax-free dollars at point-of-service, accessible through the convenience of a debit card.

Determining patient responsibility and ability to pay requires aggregation of information from a variety of sources, including payment history with the facility, credit bureaus, and financial institutions. Up-front estimation of patient responsibility must minimally account for the patient's benefit plan and anticipated procedure(s), but a more accurate pre-service estimate must also account for current status of deductibles, coinsurance, and out-of-pocket maximums—information held by the payor. Essentially running a "dummy" claim through the payor's adjudication system is the only method, short of manual research and calculation, to ensure all variables are taken into account. Even this does not necessarily account for claims the payor has yet to process. Real-time adjudication capability, including the ability to run an estimated dummy claim, is being offered by some payors but only for relatively straightforward, non-facility claims. Communication standards between health plans and financial institutions (required for Health Savings Accounts/Consumer Directed Health Plan processing) also need to be created and finalized. Today, financial institutions do not have the tools to fully communicate health plan data associated with financial transactions.

Background: the Consumer. Consumers need tools to support more informed decision-making and manage their healthcare finances. With declining employer-based healthcare and the increasing focus on the patient as consumer of healthcare products and services (retail model) versus the payor as consumer (wholesale model), patients are directly responsible for an increasing share of health expenditures. As the consumer takes on more responsibility for directing their healthcare expenditures, they will require timelier, relevant information in order to make informed healthcare decisions.

According to the Joint Task group for Value In Health, a partnership between MBProject and the 1,600 employer Automotive Industry Action Group (AIAG), one of the emerging issues in this area is *who* is the trusted source of information for consumers.[19] There are many high quality data sources. However, the very multiplicity of sources, not to mention whether they make complex biomedical information consumer-friendly, is a key factor. According to employer-based physicians who focus on optimizing human capital in the working environment, pharmaceutical manufacturers have substantial investments in helping the typical consumer understand highly complex medical data, so they can use "research data" to make more informed and better lifestyle decisions.[19]

Technology Implications, Barriers and Recommendations. Many patients are not accustomed to, nor interested in, managing their own care. However, they may find themselves in such a position due to coverage choices either beyond their control or comprehension. Many do not understand the coverage, options, costs, and responsibilities they signed up for. This places increased burden on the provider to offer education, guidance, and counseling. In addition to allocating staff, many hospitals are

providing Web-based patient/consumer portals to provide information about products, services, and associated cost estimates.

To support the consumer decision-making process, provider consumer portals should minimally provide the following features:

- Cost and quality information
- Provider quality assessments from multiple sources (commercial and government payors, independent third parties)
- Educational material

To support the current and ongoing information needs of patients to manage and direct their care, a hospital portal, in addition to the above, should provide:

- Self-scheduling and pre-registration
- A view into the EMR, including lab results
- Service reminders
- Online bill presentation and payment.

The last major hurdle is to either create or connect to an individual's Personal Health Record (PHR), combining Electronic Medical Record (EMR) data with self-entered data. The vision is to fully integrate with payors and other providers, care management organizations and financial and credit institutions to create a more robust, longitudinal record.

Trend 3: Quality—Renewed Market Forces

A variety of changing market influences is causing many healthcare stakeholders to rethink the way relationships with consumers, supply-chain partners, and competitors are developed, managed, and cultivated. These factors include changing consumer demographics, an aging population, widely varying technical knowledge and sophistication, increasing focus on wellness and healthy lifestyles, and increasing consumer accountability for healthcare choices. Similar market influences have long been recognized in other consumer-oriented industries and various technologies and tools, such as Customer Relationship Management (CRM) systems. Competitive analysis databases have been developed and refined to assist stakeholders in analyzing and understanding important market factors to retain and grow market-share. Knowledge of the marketplace is a powerful tool that can be used to keep consumers engaged and aware of product and service offerings and differentiators. Many of these market management tools and principles are beginning to be applied by hospitals as well.

In addition to medical history, a "customer knowledge base" could include such attributes as family history, jobs, education, sports and hobby interests, a patient photo, nicknames, language preferences, email address, and any special needs (e.g., vision/hearing impaired, dietary preferences, etc.). This valuable information can be used to support a variety of personalized outreach activities serving to promote a sense of connectedness and concern for the patient's well-being while in the facility and long after discharge. A patient portal, combined with occasional email or telephone outreach, can be an effective means of providing automated reminders based on standard treatment protocols, follow-up to a

recent visit, birthday greetings, targeted marketing based on patient demographics, history, etc., as well as when care from affiliated providers is indicated. These are also convenient avenues for measuring customer satisfaction and providing follow-up on items identified as areas for improvement.

Technology is also an important component of a hospital's affiliate strategy, designed to ensure that referral sources have a reliable, secure, feature-rich, and affordable means of viewing relevant patient information and scheduling admissions and other facility resources. Offering a robust physician portal, providing remote access to the hospital's systems or offering hosted infrastructure via a SaaS (Software as a Service) model are some of the means to ensure external providers have the tools needed to direct patients to the appropriate sources of care.

In the developing era of cost and quality transparency, it is especially important to be knowledgeable of other key players in the marketplace and how your facility compares in terms of product and service mix, quality, pricing, accessibility, and other features that may affect your ability to compete. Again, technology offers tools commonly used in other industries to gather and analyze the competitive landscape and identify areas for targeted improvements.

Conclusion

In summary, there are many different and complex changes required to re-invent revenue cycle processes in light of the effects of patient Satisfaction (customer/patient relationship management and retention), consumerism (pricing transparency) and quality. Adoption of HSAs and more price transparency is expected to steadily grow, changing how healthcare is financed. [20, 21]

The best practices in technology for revenue cycle management on the front-end are summarized in Table 1. These start with developing a business relationship with the consumer before services are needed through the proactive integration of financial planning prior to service.

Table 1: Best Practices for Technology in Revenue Cycle Management

Front Office (Upstream) Technology Enabling Best Practices	
Operational Best Practice	**Enabling Technology Overview**
Patient Education	Patient Web portal, including facility quality and efficiency data, educational material, and virtual facility tours
Automated Referral Processing	Utilize standard ANSI X12 EDI transactions for communication and authorization of referrals

Front Office (Upstream) Technology Enabling Best Practices	
Operational Best Practice	**Enabling Technology Overview**
Patient Self-Service	a) Patient Web portal providing self-registration, pricing estimation tools, financial guidance, payment options, integration with PHR for self-entered data, and, in the future, longitudinal medical history through payor and provider integration. b) Patient registration self-service kiosk
Family Eligibility Verification	Verify eligibility multiple times throughout revenue cycle, both guarantor and spouse. Emerging tools will scan multiple payors based on high volume payor mix, increasing success rate.
Automated Charity Screening	Utilize third-party data sources to obtain family income, household composition, and other charity qualifying criteria to determine if patient might be automatically eligible based on facility policy for financial, medical indigency, or presumptive eligibility.
Automated Medicaid Screening	Utilize third-party data resources to automatically screen patients for Medicaid means test to identify patients who should be channeled into Medicaid enrollment assistance programs.
Financial Aid Screening	Universally screen all patients pre-service via a brief automated interview to determine if patient might quality for any federal, state, local, or private financial aid program.
Patient/Guarantor ID Validation	Utilize third-party data sources to automatically compare internal HIS data to third-party data, and alert user to important discrepancies. Automatically update HIS data with correct information.
Quality Assurance Processes	Error checking is done throughout the process - correcting errors for today's registrations and creating exception work lists identifying registrations that did not have required activity completed or not properly updated HIS (eligibility verification, charity and Medicaid screening, Patient ID validation, or probability to pay assessed).

Front Office (Upstream) Technology Enabling Best Practices	
Operational Best Practice	**Enabling Technology Overview**
Preauthorization Screening	Automatically provide registration user with alert that medical service(s) might require pre-authorization. Automatically provide appropriate payors with notice-of-admission.
Assess Guarantor's Probability to Pay	Utilize third-party data, as well as guarantor's payment history on prior accounts, to assess probability to pay for future service. Assign patient to different payment workflow based on probability assessment.
Create Pre-Service Estimated Patient Bill	Prior to services being rendered, or prior to discharge, create an estimated bill. Utilize year-to-date benefit accumulation data obtained from eligibility verification response, contract terms, and prior claims data to derive a credible estimate.
Create Pre-Service Payment Plan	Create for users a patient specific recommended: (a) POS deposit, and (b) monthly payment amount based on hospital's collection policy and takes into account the guarantor's financial ability to pay.
Collect Payment Deposit	Integrate payment collection capabilities into HIS for credit/debit, eCheck, and cash and automatically post payments to patient's account. Support pre-service payment (i.e., payment is received prior to creation of patient account).

The best practices in technology for revenue cycle management on the back-end are summarized in Table 2. Emphasis today is placed on knowing the patient population, their insurance coverage and their individual ability to pay.

Table 2: Best Practices in Back Office Technology

Back Office (Downstream) Technology Enabling Best Practices	
Operational Best Practice	**Enabling Technology Overview**
Registration QA Processes	Daily reprocess or immediately correct errors for today's registrations and create exception work lists identifying registrations that did not have required activity completed, or did not properly updated HIS (eligibility verification, charity and Medicaid screening, Patient ID validation, or probability to pay assessment).

Back Office (Downstream) Technology Enabling Best Practices	
Patient AR Stratification	Weekly re-assess guarantor's probability to pay and stratify accounts by dollar value to assign accounts of most appropriate collection workflow (e.g., retain in-house for collector follow-up, refer to early out or collections vendors, etc.).
Bad Debt Charity Reclassification	Automatic determination of charity eligibility through monthly review of bad debt accounts, using third-party data sources, to identify accounts that meet hospitals' stated charity policy. Reclassify these accounts from bad debt to charity.
Account Eligibility Verification Monitoring	Monthly re-check self-pay, bad debt, and charity accounts for Medicaid eligibility.
Automated Claims Work Queue Management	Automate claims status checking using ANSI X12 276/277 transactions based on claim inactivity according to response status
Patient Self-Service	Patient Web portal supporting statement presentation and electronic payment
Patient Satisfaction and Ongoing Connection	1) Post-event satisfaction survey presented via Web portal or email 2) Automated service reminders based on standard treatment protocols 3) Targeted marketing based on patient demographics 4) Create smooth referral process to other providers for future services

Hammer and Franklin (2008) clearly identify the challenges that all revenue cycle leaders face today in an environment that includes:

- Networks of bolt-on applications that are complex and costly and do not have the functionality to address many of the current market forces affecting healthcare providers' revenue streams;
- Infrastructure originally implemented in the 1980s and 1990s that is using inefficient and obsolete technology;
- Increased pressure to change the focus of healthcare to consumer-driven;
- Scarcer and scarcer capital dollars, resulting in incremental changes; and
- Pressure to justify system changes using return on investment models.[5]

Major points discussed in this paper are outlined in Revenue Cycle Touch Points in Patient Encounter Life Cycle. The purpose of this tool is to provide clarity around the myriad of factors impacting revenue cycle activities and direction and present these factors in a logical fashion.

The challenge faced within healthcare is to plan the incremental changes in light of the long term goal to achieve enterprise integration both within the provider organization and across strategic partners, who include patients and consumers. The industry is being challenged to change past approaches with leverage of new and emerging technology systems. It has never been more important to remember the quality and financial opportunities that will result when clinical and revenue cycle systems are linked together for optimum effectiveness and efficiencies across the care continuum.

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